Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (currently amended): A method for optically detecting labeled molecules that have participated in a chemical reaction with a reagent supported on a surface and that have become temporarily supported at the site of the reagent, comprising:

a) providing a flow cell:

b) providing within said flow cell a solid support having a surface;

c) supporting at least one reagent molecule to said surface;

d) introducing ~~at least~~ two flowing solutions into said flow cell, wherein ~~at least~~ one ~~solution~~ of the two flowing solutions comprises a labeled molecule that can contact said at least one reagent molecule, and ~~at least~~ one ~~solution~~ of the two flowing solutions comprises buffer with no detectable labels, and wherein the two flowing solutions are at different locations within the flow cell at any time;

e) immersing the ~~supported reagent~~ at least one reagent molecule in ~~a~~ the flowing solution comprising a labeled ~~molecules~~ molecule;

f) switching or directing the two flowing solutions with respect to the ~~supported reagent~~ at least one reagent molecule, or switching the location of the ~~supported reagent~~ at least one reagent molecule with respect to the two flowing solutions, to immerse the ~~supported reagent~~ at least one reagent molecule in the flowing solution comprising buffer with no ~~labeled molecules~~ detectable labels;

g) providing a light source for illuminating an illumination zone within the flowing solution comprising buffer ~~solution~~ with no detectable labels;

h) providing a detector for detecting light emitted from the illumination zone;

i) substantially simultaneously to said switching or directing the two flowing solutions with respect to the ~~supported reagent~~ at least one reagent molecule, or switching the location of the ~~supported reagent~~ at least one reagent molecule with respect to the two flowing

solutions, switching at least one of said light source, detector, or location of said ~~supported reagent~~ at least one reagent molecule to cause the label of a labeled molecule which has reacted with said ~~supported reagent~~ at least one reagent molecule to pass through said illumination zone; and

j) detecting light emitted at said illumination zone to detect the presence of one or more labeled molecules.

Claim 2 (original): A method according to claim 1 wherein a single labeled molecule is detected by said step of detecting light emitted at said illumination zone.

Claim 3 (original): A method according to claim 1 wherein a chemical reaction is detected by detecting the presence of labeled molecules that have participated in said chemical reaction.

Claim 4 (original): A method according to claim 1 wherein a single chemical reaction is detected by detecting the presence of a single labeled molecule that has participated in said chemical reaction by said step of detecting light emitted at said illumination zone.

Claim 5 (original): A method according to claim 1 wherein the concentration of said labeled molecules is above 10^{-8} M

Claim 6 (original): A method according to claim 1 wherein the concentration of said labeled molecules is above 10^{-7} M.

Claim 7 (original): A method according to claim 1 wherein the concentration of said labeled molecules is above 10^{-6} M.

Claim 8 (currently amended): A method according to claim 1 wherein the concentration of ~~reactant~~ said labeled molecules is above 10^{-5} M.

Claim 9 (original): A method according to claim 1 wherein the label is a fluorescent label.

Claim 10 (currently amended): A method according to ~~claim 5~~ claim 1 wherein the ~~supported reagent~~ at least one reagent molecule is a complex comprising a surface-bound polymerase enzyme and a nucleic acid or a supported nucleic acid and a polymerase, and the

solution of labeled reactive molecules comprises at least one type of fluorescently labeled NTP molecule with no quenching moiety.

Claim 11 (original): A method according to claim 10 wherein said fluorescent labels are attached to the beta or gamma phosphate of the NTP.

Claim 12 (original): A method according to claim 1 wherein two or more distinguishable types of labels are used to label two or more different types of reactive molecules.

Claim 13 (currently amended): A method of claim 1 wherein optical detection of the labels includes identifying the labels by a property selected from the group consisting of color of excitation light or emission light, fluorescence lifetime, fluorescence brightness, electrophoretic mobility, location of detection, ~~or~~ and time of detection.

Claim 14 (original): A method according to claim 3 wherein an array of supported reagents is used and wherein optical detection of the reactions are separately accomplished for each reagent of the array.

Claim 15 (currently amended): A method of claim 3 wherein a series of chemical reactions is detected by repeating said steps of introducing said at least two flowing solutions into said flow cell, immersing said ~~supported reagent~~ at least one reagent molecule in ~~a~~ the solution comprising labeled molecules, switching or directing the flowing solutions with respect to the ~~supported reagent~~ at least one reagent molecule, or switching the location of the ~~supported reagent~~ at least one reagent molecule with respect to the flowing solutions, switching at least one of said light source, detector, or location of said ~~supported reagent~~ at least one reagent molecule to cause the label of a labeled molecule which has reacted with said ~~supported reagent~~ at least one reagent molecule to pass through said illumination zone; and detecting light emitted at said illumination zone to detect the presence of one or more labeled molecules.

Claim 16 (original): A method of claim 15 wherein the time interval between successive chemical reactions is controlled by controlling the time between successive repetitions.

Claim 17 (withdrawn)